3.

31.

$$\frac{dy}{dx} = 9x^2 - 4x + 5 \quad @(-1) = 0$$

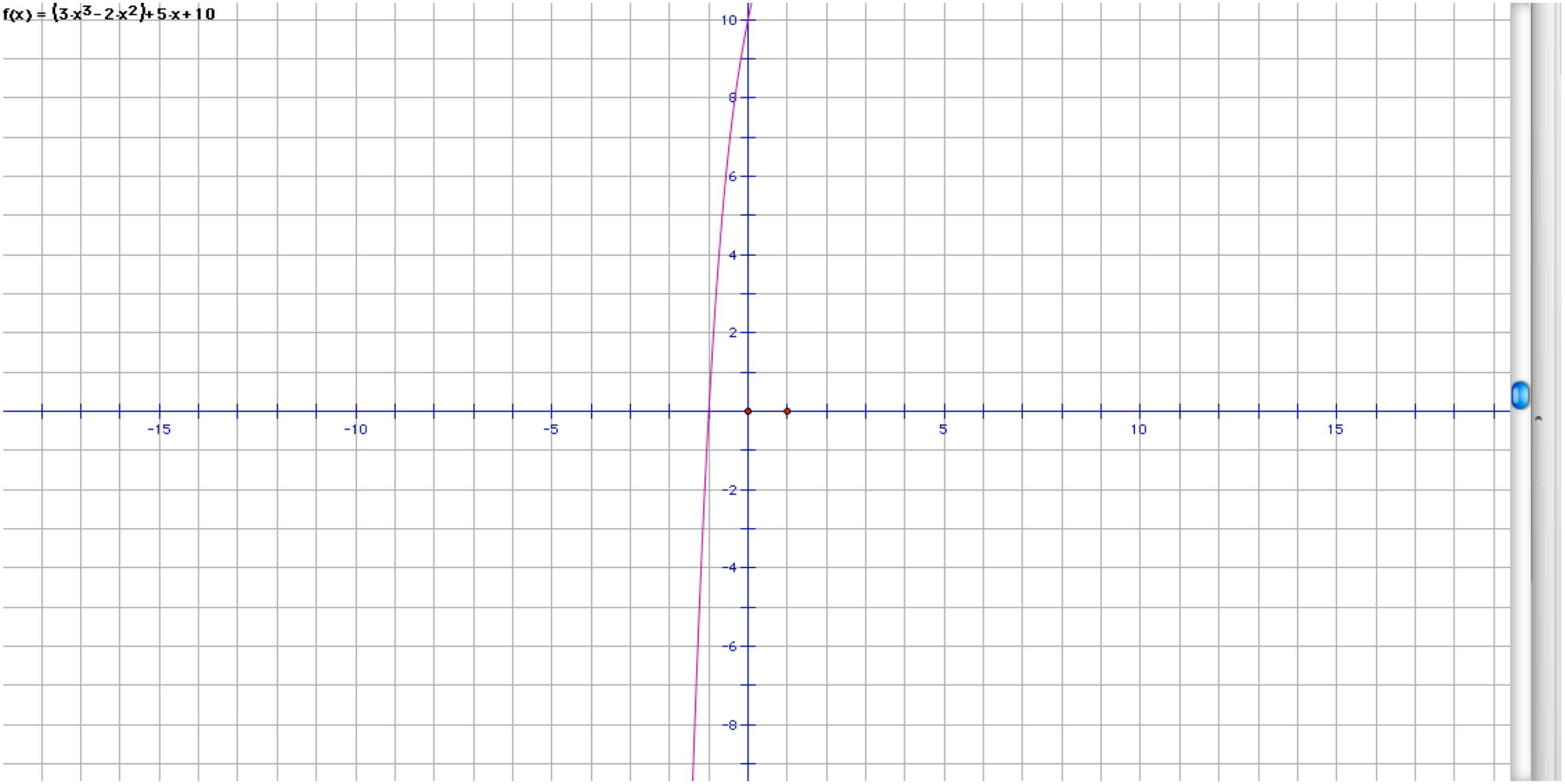
$$y = 3x^3 - 2x^2 + 5x + C$$

$$0 = -3 - 2 - 5 + C$$

$$C = 10$$

$$y = 3x^3 - 2x^2 + 5x + 10$$

(-1, 0)


f(x) = (3·x^3 - 2·x^2) + 5·x + 10
10
8
6
4
2
-2
-4
-6
-8
-15
-10
-5
5
10
15

$$\frac{dy}{dx} = \cos x + \sin x \qquad (\pi, 1)$$

$$y = \sin x - \cos x + C$$

$$1 = \sin\pi - \cos\pi + C$$

$$1 = 0 - (-1) + C$$

$$C = 0$$

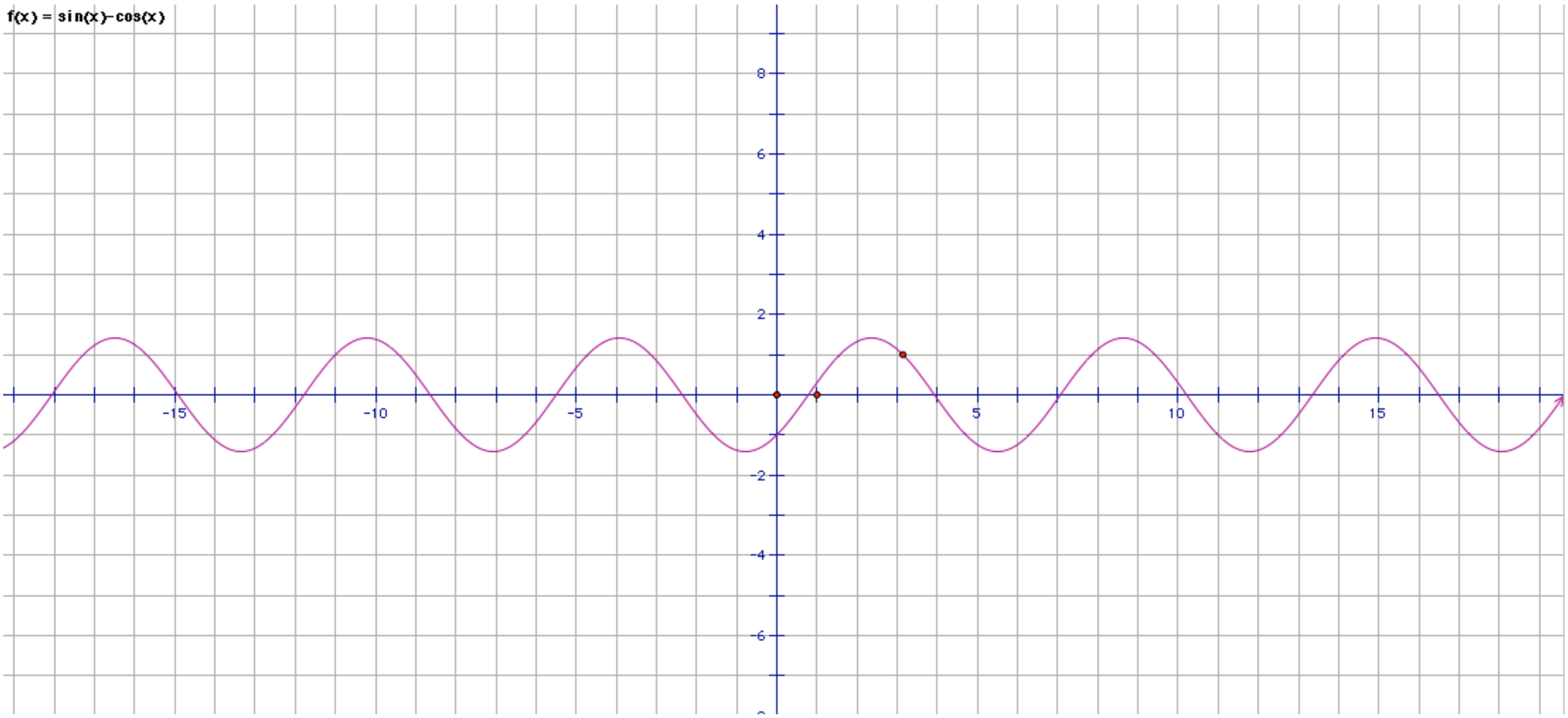
$y = \sin x$

$\frac{dy}{dx} = \cos x$

$y = \cos x$

$\frac{dy}{dx} = -\sin x$

$y = \sin x - \cos x$


f(x) = sin(x)-cos(x)
8
6
4
2
-2
-4
-6
-15
-10
-5
5
10
15

Find the derivatives of:

$y = \sin x$

$\frac{dy}{dx} = \cos x$

$y = \cos x$

$\frac{dy}{dx} = -\sin x$

$y = \tan x$

$\frac{dy}{dx} = \sec^2 x$

$y = \sec x$

$\frac{dy}{dx} = \sec x \tan x$

$y = \csc x$

$\frac{dy}{dx} = -\csc x \cot x$

$y = \cot x$

$\frac{dy}{dx} = -\csc^2 x$

$$y = \cot x$$

$$\frac{dy}{dx} = -\csc^2 x$$

$$\frac{dy}{dx} = \int -\csc^2 x \, dx$$

$$y = \cot x + C$$

$$y = \csc x$$

$$\frac{dy}{dx} = -\csc x \cot x$$

$$\frac{dy}{dx} = \int -\csc x \cot x \, dx$$

$$y = \csc x + C$$

$y = \sec x$

$\frac{dy}{dx} = \sec x \tan x$

$\int \sec x \tan x \, dx$

$y = \sec x + C$

$$y = \tan x$$

$$\frac{dy}{dx} = \sec^2 x$$

$$\int \sec^2 x \, dx$$

$$y = \tan x + C$$

$$\frac{dy}{dx} = \int (\tan^2 x + 1)\, dx$$

$$\frac{dy}{dx} = \int \sec^2 x \, dx$$

$$y = \tan x + c$$

$$\frac{dy}{dx} = \int (\tan^2 x + 1)\, dx$$

$$\frac{dy}{dx} = \int \left(\frac{\sin^2 x}{\cos^2 x} + 1\right) dx$$

$$\frac{dy}{dx} = \int \frac{\sin^2 x + \cos^2 x}{\cos^2 x}\, dx = \int \frac{1}{\cos^2 x}\, dx$$

$$= \int \sec^2 x\, dx$$

$$y = \tan x + C$$

$$\int \sec x(\tan x + \cos x)\,dx$$

$$\int(\sec x\tan x + \sec x\cos x)\,dx$$

$$\int(\sec x\tan x + 1)\,dx$$

$$y = \tan x + x + C$$